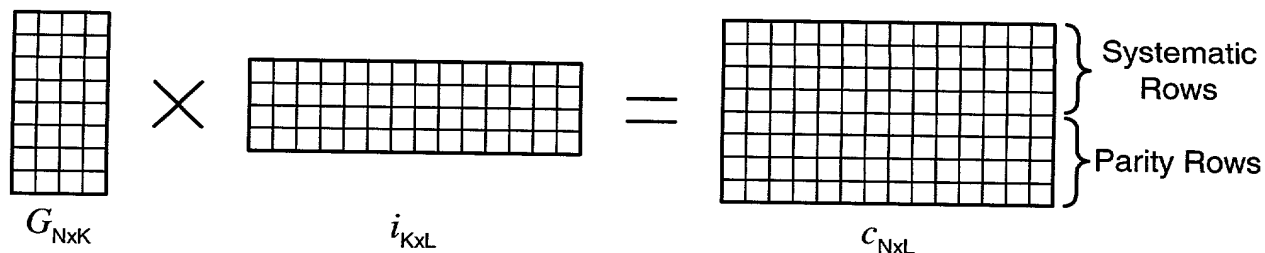


FIG. 1

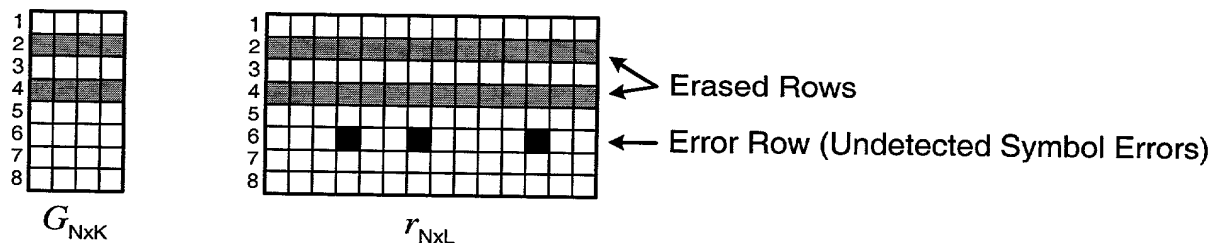
Transmitter

Step 1: Encode an information block, $i_{K \times L}$, by pre-multiplying it with a generator matrix, $G_{N \times K}$, to derive a coded block, $c_{N \times L}$.

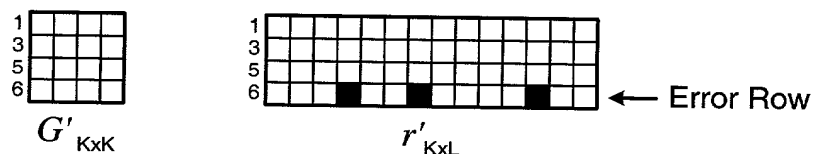


Receiver

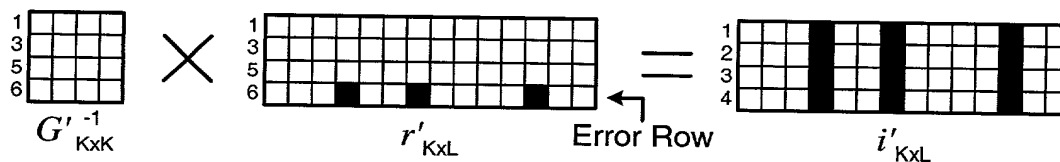
Step 2: Receive the coded block. Determine erased rows in the received block, $r_{N \times L}$, and mark the corresponding rows of the generator matrix as erased.



Step 3: Form a reduced received block, $r'_{K \times L}$, with any K un-erased rows of $r_{N \times L}$, and form a reduced generator matrix, $G'_{K \times K}$, with K corresponding rows of $G_{N \times K}$.



Step 4: Invert $G'_{K \times K}$. Derive an initial estimate of the information block, $i'_{K \times L}$, by multiplying $G'^{-1}_{K \times K}$ with $r'_{K \times L}$.



Step 5: Form an estimated information block, $\hat{i}_{K \times L}$, by replacing the erased systematic rows of the received block, $r_{N \times L}$, with the corresponding rows of $i'_{K \times L}$.

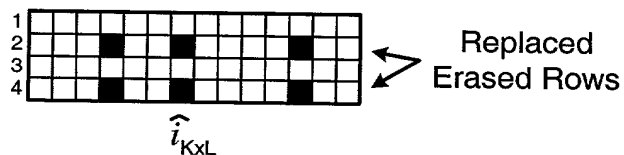
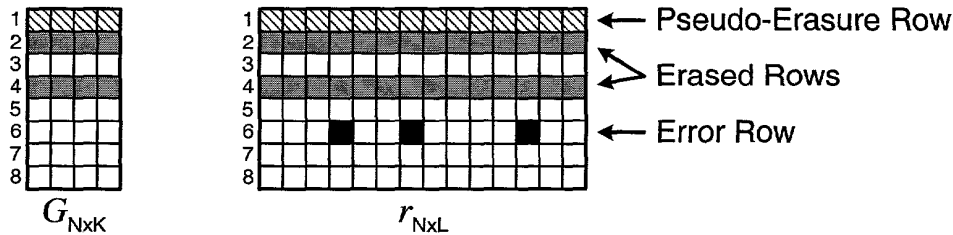


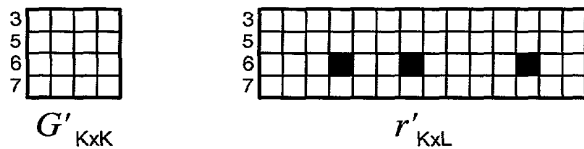
FIG. 2

Receiver

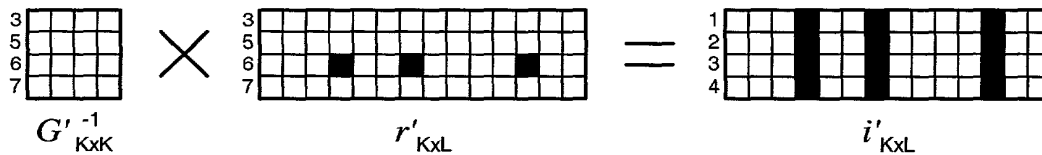
Step 3: Select an un-erased systematic row in the received block to be a pseudo-erasure row. Mark the corresponding row in the generator matrix as erased.



Step 4: Form a reduced received block, $r'_{K \times L}$, with any K un-erased rows of $r_{N \times L}$, and form a reduced generator matrix, $G'_{K \times K}$, with K corresponding rows of $G_{N \times K}$.



Step 5: Invert $G'_{K \times K}$. Derive an initial estimate of the information block, $i'_{K \times L}$, by multiplying $G'^{-1}_{K \times K}$ with $r'_{K \times L}$.



Step 6: Compare the pseudo-erasure row against the corresponding row of $i'_{K \times L}$ and identify the location of an unmatched symbol. Perform error location on a codeword corresponding to a column containing the unmatched symbol.

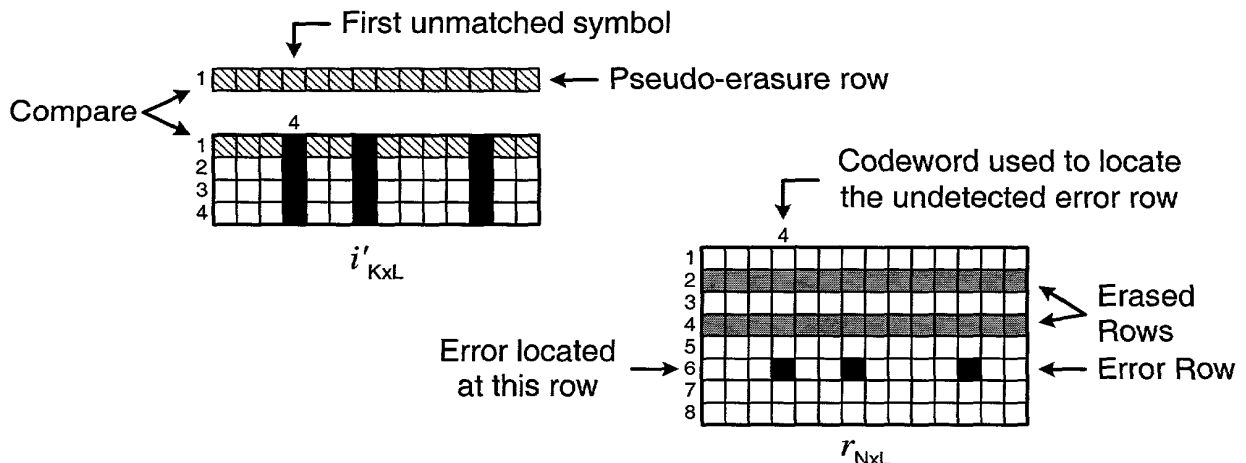
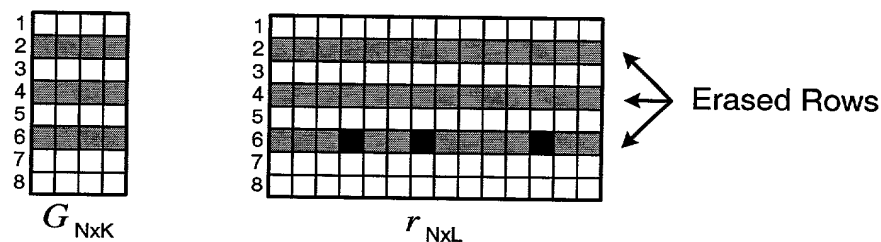
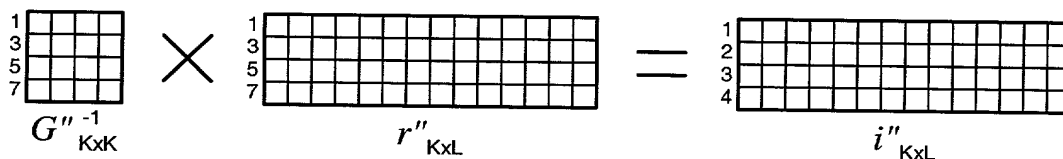


FIG. 3A

Step 7: Mark the row with the symbol error as an erased row. Mark the pseudo-erasure row as un-erased. Form a new reduced received block, $r''_{K \times L}$, with any K un-erased rows of $r_{N \times L}$, and form a new reduced generator matrix, $G''_{K \times K}$, with K corresponding rows of $G_{N \times K}$.



Step 8: Repeat Step 5. Invert $G''_{K \times K}$. Derive a new initial estimate of the information block, $i''_{K \times L}$, by multiplying $G''^{-1}_{K \times K}$ with $r''_{K \times L}$.



Step 9: Form an estimated information block, $\hat{i}_{K \times L}$, by replacing the erased systematic rows of the received block, $r_{N \times L}$, with the corresponding rows of $i''_{K \times L}$.

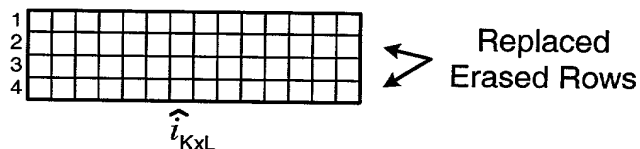


FIG. 3B

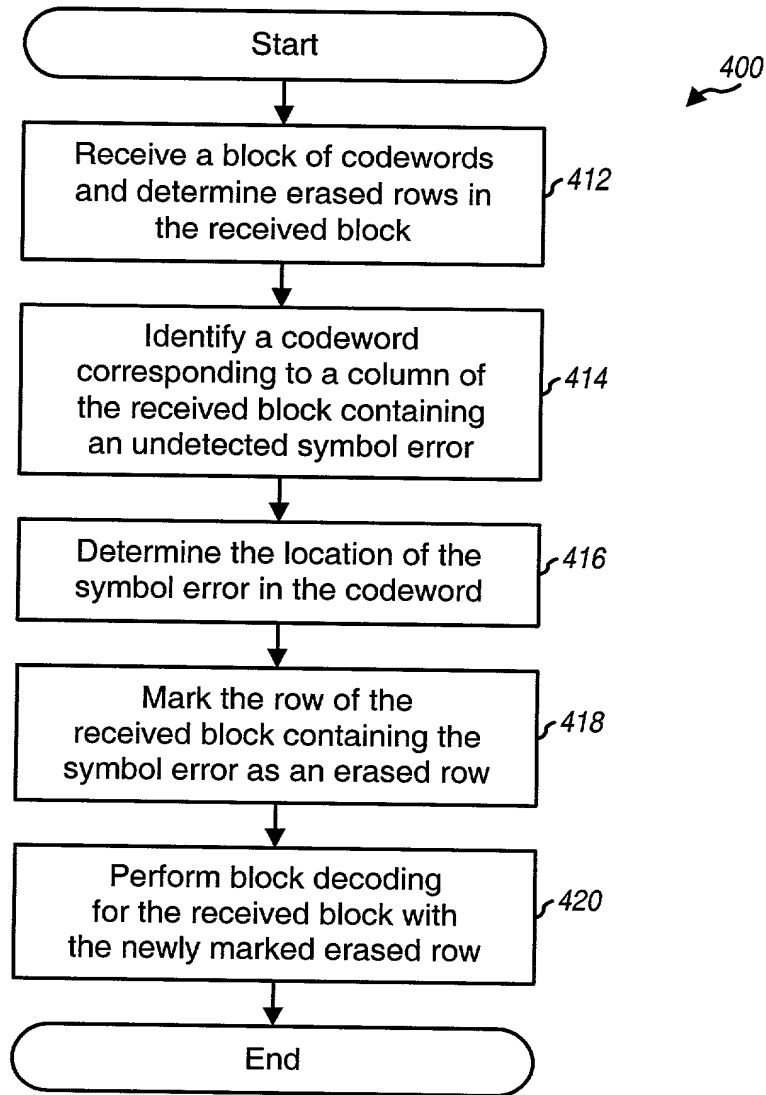


FIG. 4

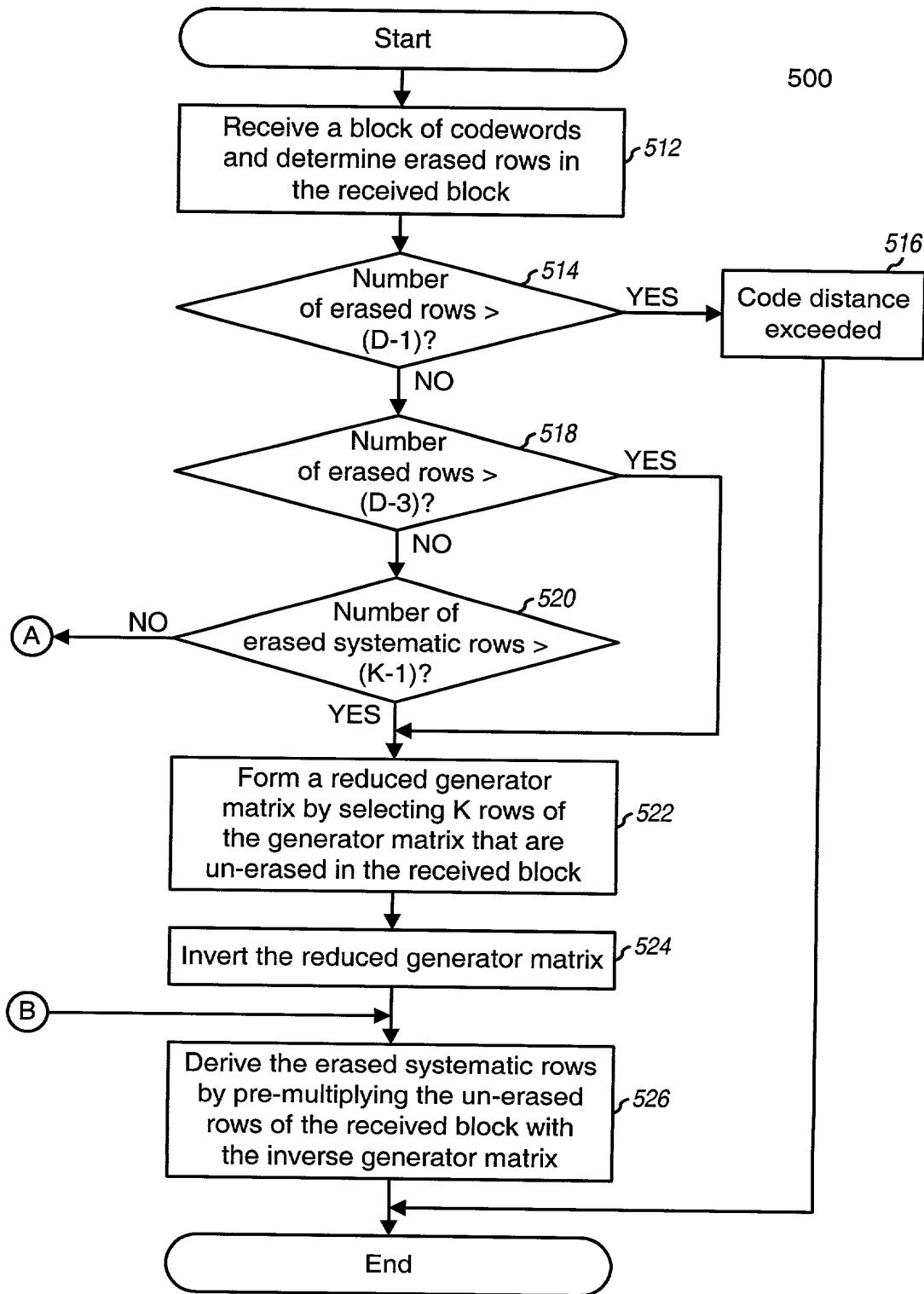


FIG. 5A

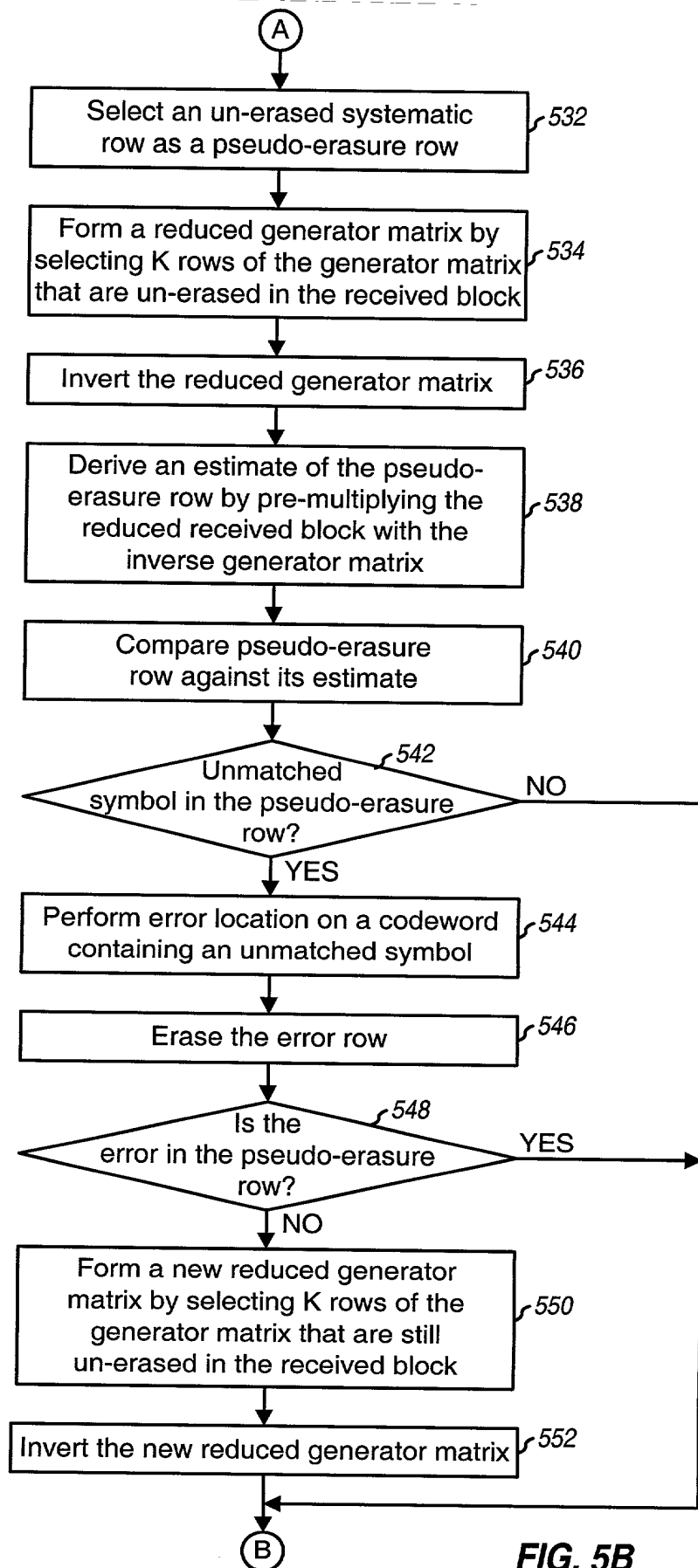


FIG. 5B